

REMARKS

Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Claims 6, 18, and 26 are canceled. No claims are added.

Claims 1, 11-13, 23-25, and 27 are amended. Support for the amendment to claim 1 can be found for example in the specification page 9 line 9.

A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier.

After amending the claims as set forth above, claims 1-3, 5, 7-15, 17, 19-25, 27-28, and 31 are under examination.

I. Claim Rejections under 35 U.S.C. § 101

The Office Action rejects claims 1-3, 5-15, 17-28, and 31 for being directed to non-statutory subject matter. (Office Action, page 3)

By way of the present reply, Applicants have amended claims 1, 13, and 27 to recite “to a display device.” The support can be found in the specification page 9 line 9, for example. Applicants submit that the amended claims and their respective dependent claims are directed to statutory subject matter.

Applicants have also canceled claim 26 without prejudice or disclaimer, solely to advance the prosecution.

With regard to claim 27, the Office Action states that the instant specification does not define “computer-readable memory medium” as being limited only to physical media, therefore the term as recited encompasses the non-statutory embodiments of signal and carrier waves. (Office Action, page 5) Applicants respectfully disagree. Attention is drawn to page 14 of the specification, which describes the computer memory medium. This description is sufficiently clear to one skilled in the art that the medium is physical and does not encompass non-statutory subject matter. Claim 27 therefore does not contain non-statutory subject matter.

Applicants submit that the presently claimed invention produces tangible results which serve to determine gene expression intensity data of each cell. See specification page 2, lines 14-15. Therefore the claims are directed to statutory subject matter.

Accordingly, Applicants respectfully request the reconsideration and withdrawal of the rejections on this ground.

II. Claim Rejections under 35 U.S.C. § 112, first paragraph

The Office Action withdraws the previous rejections of claims 1-3, 5-15, 17-28, and 31 under § 112, first paragraph. (Office Action, pages 5-6)

III. Claim Rejections under 35 U.S.C. § 112, second paragraph

The Office Action withdraws the previous rejections of the claims as being indefinite regarding “previously-adjusted,” “the distortion,” and “the order statistics.” (Office Action, page 6) However, the action rejects claims 1-3, 5-12, and 23-25 as being indefinite. (Office Action, page 6)

Regarding claims 1-3 and 5-12, the Office Action states that the present specification is inadequate in providing structures for the recitation of “data standardization means,” “first correction means,” and “second correction means.” Applicants respectfully traverse the rejections on this ground. (Office Action, page 7.)

The specification, for example on page 9 and in Figure 2, describes “data standardization unit 21,” “spot-position-based correction unit 22,” “S-D-plot-based correction unit 23” and “S-D transformation unit 24,” which correspond to the recited “means” elements. Therefore, the claims comply with the requirements of 35 U.S.C. § 112.

With respect to claim 5, the Office Action states that the term “said data standardization means” has insufficient antecedent basis. Applicants respectfully disagree. Claim 5 depends from claim 3 which depends from claim 1. Although there is not recitation of “data standardization means” in claim 3, the term is recited in claim 1 which is incorporated into claim 3 by the dependency. Therefore, the term has sufficient antecedent basis.

Applicants have amended claims 11-12, and 23-25 to clarify that “the correction” is a correction in a whole of the cDNA microarray correction system as suggested by the examiner, which is believed to obviate the rejection of those claims.

Accordingly, Applicants respectfully request the reconsideration and withdrawal of the rejections on this ground.

IV. Claim Rejections under 35 U.S.C. § 102

The Office Action withdraws the previous rejections of claims 1-2, 6, 13-14, and 26-27 as being anticipated by Yang et al. (Office Action, pages 9-10)

V. Claim Rejections under 35 U.S.C. § 103(a)

The Office Action rejects claims 1-2, 13-14, and 26-27 as being obvious over Yang in view of Weng (US 2003/0226098). (Office Action, page 10) However, the action does not reject claims 3, 5-12, 15, 17-25, 28, and 31 over prior art.

Applicants have amended claims 1, 13, and 27 to recite “wherein the standardized gene expression intensity data is represented by a sum of a true gene intensity and a distortion depending on the spot position” featured in the original claims 6 and 18. Accordingly, claims 1, 13, and 27 as amended are not obvious; therefore their respective dependent claims 2 and 14 are not obvious. Claim 26 has been canceled.

Furthermore, the claims as amended are not obvious over Yang in view of Weng because there is no reason that would have prompted a person of ordinary skill in the relevant field to combine Yang and Weng in the manner presently claimed.

The Supreme Court recently reaffirmed the Graham factors for determining obviousness in *KSR Int'l Co. v. Teleflex Inc.* (No. 04-1350) (U.S., April 30, 2007). The Graham factors, as outlined by the Supreme Court in *Graham et al. v. John Deere Co. of Kansas City et al.*, 383 U.S. 1 (1966), are: 1) determining the scope and contents of the prior art; 2) ascertaining the differences between the claimed invention and the prior art; 3) resolving the level of ordinary skill in the pertinent art; and 4) evaluating evidence of secondary consideration. The Court noted that it is “important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements” in the manner claimed, and specifically stated:

Often, it will be necessary . . . to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. To facilitate review, this analysis should be made explicit.

KSR Int'l Co. v. Teleflex Inc., slip op. at 14 (emphasis added). As discussed below, the cited references cannot render the claimed invention obvious.

The Office Action fails to ascertain the differences between the present invention and cited reference Yang. Yang discloses within-print tip group normalization (See Yang at page 3, left column, lines 1 to 7) wherein correction is made to a distortion caused by differences of dyes on MA-plots for a grid. In other words, in Yang a correction is made so that a distribution of gene expression intensity data is adjusted among the grids, as readily understood from the formula shown on page 3 of Yang. Therefore, it is difficult for Yang to correct any distortion of a distribution of common gene expression data within each grid.

In contrast, the present invention discloses a standardization method due to grid-by-grid order statistics, in which a correction is made by using grid-by-grid order statistics at every grid. Thus, the presently claimed invention is completely different from Yang in that the presently claimed invention can correct a distortion caused to occur in dependency on coordinate positions (physical positions) of each grid, whereas Yang cannot correct such a distortion.

In view of the differences between Yang and the presently claimed invention, the cited references do not provide any suggestion or motivation that would lead one skilled in the art to combine their teachings thereby arriving at the presently claimed invention.

Accordingly, Applicants respectfully request the reconsideration and withdrawal of the rejection on this ground.

CONCLUSION

Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check or credit card payment form being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicants hereby petition for such extension under 37 C.F.R. § 1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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By 

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